



# OVERVIEW

- Responsibilities
- Planning
- Site Selection
- Requirements
- Site Planning
- Operations and Maintenance
- Camp Closure and Clean up

# **LEARNING OBJECTIVES**

## **TLO**

**Given a tactical situation, a map, operations order, commanders intent, size of unit to occupy cantonment, and references, plan survey support for the construction of a forward operations base to provide the commander with precise GPS locations of all essential structures in support of the concept of operations and**

# **LEARNING OBJECTIVES**

## **ELO**

- (1) Given a tactical situation, a map, an operations order, commanders intent, and references, analyze METT-T from a general engineering perspective per the FM 5-34/MCRP 3-17A. (1361-XENG-2002a)**
- (2) Given a tactical scenario, a map, an operations order, commanders intent, and references, identify items needed in a briefing packet relevant to a base camp plan per the FM 3-34.400 (FM 5-104). (1361-XENG-2002b)**
- (3) Given a tactical situation, a map, operations order, commander's intent, a unit to occupy a base camp, and references, determine the feasibility of using existing infrastructure to satisfy the commander's intent per the FM 3-34.400 (FM 5-104). (1361-XENG-2002c)**
- (4) Given a tactical situation, a map, operations order,**

# **LEARNING OBJECTIVES**

## **ELO**

**(5) Given a tactical situation, a map, an operations order, commander's intent, the size of a unit to occupy a base camp, and references, determine a suitable location for the base camp on a map that satisfies the commander's intent per the FM 3-34.400 (FM 5-104). (1361-XENG-2002e)**

**(6) Given a tactical situation, an operations order, commanders' intent, the size of a unit to occupy a base camp, survey set GP, a computer work station, plotter, and references, design a base camp so that operational risk is minimized while meeting the provisions of the concept of operations and the commander's intent per the FM 3-34.400 (FM 5-104). (1361-XENG-2002f)**

**(7) Given a tactical situation, survey set GP, a**

# **METHOD AND MEDIA**

- LECTURE
- PRACTICAL APPLICATION
- IRF

# EVALUATION

- CANTONMENT BRIEF
- BRIEFING PACKET / MATERIALS
- WHEN?

# **SAFETY / CEASE TRAINING BRIEF**

- TORNADO
- FIRE
- ORA



# QUESTIONS



# DEFINITION OF CANTONMENT

- **CANTONMENT**: A GROUP OF TEMPORARY STRUCTURES USED FOR QUARTERING OF PERSONNEL/ TROOPS AND SUPPLIES/EQUIPMENT.

# MAGTF CAPABILITIES

- **ENGINEER SUPPORT BATTALION**

Who's job is it?

- PRIMARY TASK
- HEAVY CAPABILITY

- **COMBAT ENGINEER BATTALION**

- SECONDARY TASK
- LIGHT CAPABILITY

# **MAGTF**

# **CAPABILITIES**

- **ENGINEER COMPANY (MWSS)**
  - PRIMARY TASK
  - MEDIUM CAPABILITY
- **NAVAL CONSTRUCTION FORCES**
  - PRIMARY TASK
  - HEAVY CAPABILITY

# **OTHER SERVICES & AGENCIES**

- **ARMY CORPS OF ENGINEERS**
- **AIR FORCE**
- **FOREIGN MILITARY OR HNS**
- **CIVILIAN CONTRACTORS**
  - **BROWN & ROOT or DYNACOR**

# **WHEN DO WE PLAN FOR THEM?**

## **When Do We Plan For Them?**

- **CONTINGENCY OPERATIONS IN  
WAR**

- **SITUATION REQUIRES A  
SUSTAINMENT OF MILITARY FORCES**

- **PEACE TIME CONTINGENCY OPERATIONS**

- **DISASTER RELIEF**
- **TRAINING**
- **SHOW OF FORCE**
- **PEACEKEEPING FORCES**
- **HUMANITARIAN OPERATIONS**



What is the capability of an MWSS unit in  
Cantonment planning/construction?

When might we be called upon to build a  
cantonment?

# RESPONSIBILITIES

- **ENGINEER OFFICER**
  - DESIGN AND CONSTRUCTION OF FACILITIES
  - ENSURE CAPABILITIES CAN SUPPORT MISSION
  - ENSURE COMPLIANCE WITH DOD AND HN ENVIRONMENTAL REGULATIONS
- **LOGISTICS OFFICER (S-4)**
  - MOVEMENT OF GEAR AND EQUIPMENT
  - CONTRACTING ALL HNS
- **SUPPLY OFFICER (THROUGH S-4)**
  - PROCUREMENT OF ALL REQUIRED SUPPLIES



# RESPONSIBILITIES

- **CAMP COMMANDANT (HQ CMMDT)**
  - ESTABLISHMENT OF CAMP POLICIES
  - DAILY ADMINISTRATION AFTER TURN-OVER
  - LOCAL SECURITY
- **MEDICAL OFFICER (OR IDC)**
  - ENSURE PROPER HYGEINE AND SANITARY CONDITIONS ARE MAINTAINED
  - MONITOR WATER SOURCE/HYGIENE FACILITIES
- **SECURITY FORCE COMMANDER**
  - ESTABLISH/SUPERVISE CAMP SECURITY PLAN



Who are the key players in the planning, construction and maintenance of a Cantonment?

What are the responsibilities of the Engineer Officer in Cantonment planning/construction?

# CONCEPT OF OPERATIONS (CONOPS)

- **Pre-Deployment Preparation**
  - Planning begins as soon as mission directive is received
    - Mission Analysis
    - SLRP (Site Reconnaissance / Site Survey)
    - Coordination
  - Note: Time spent on the above dependent on urgency of the mission.

# CONCEPT OF OPERATIONS (CONOPS)

- **Task Organize**

- as Planning continues, Engr Det (+ supt elements) and Eq. task organized to effectively execute mission.

- Considerations

- Engineer Assets (personnel and equipment)
    - Priority of movement

# CONCEPT OF OPERATIONS (CONOPS)

- **Deployment**
  - Air Echelon (Initial occupation force)
  - Landing Force Support Party (Const force)
- **Construction**
  - Expected level of permanency (mission analysis)
  - Expected on-going activities

# CONCEPT OF OPERATIONS (CONOPS)

- **Turn-over**
  - Camp Commandant takes over of the day-to-day functions of the camp
- **Maintenance and Operations**
  - Engineer Det functions will remain
    - **Electricity**
    - **Water production**

# **CONCEPT OF OPERATIONS (CONOPS)**

- **Tear-Down and Retrograde**
  - **Dependent upon the life-span of the camp**
  - **The original unit may or may not be the unit to execute tear-down and retrograde**
  - **Plans should be made for eventual**



Name the activities involved in Pre-Deployment and preparation phase of the Cantonment Concept of Operations?

Do the tasks of the Engineer Detachment stop upon turn-over of the Camp Commandant?



**10 Min**

**Break!**

# PLANNING

- Time Sensitive
- Mission Driven
- An Iterative and Cyclic Process
  - There will be areas that will have to be:
    - Readdressed
    - Revised / Updated

# ENGINEER POINT OF VIEW

- **FOCUS ON CAMP REQUIREMENTS**

- COMMANDERS INTENT
- MISSION OF BASE CAMP SITE
- NUMBER OF PERSONNEL
- DURATION OF OPERATIONS

- **IDENTIFY POTENTIAL LOCATIONS FOR BASE CAMP SITE**

- EXISTING TRANSPORTATION SYSTEM
- IDENTIFY POSSIBLE WATER SOURCES

# **SITE RECONNAISSANCE**

- **SITE SURVEY TO ESTABLISH**
  - **HOST NATION SUPPORT (S-4)**
  - **OPERATIONAL LIAISON (S-2/S-3)**
  - **MAIN BODY PREPARATION (PERS/EQUIP)**
  - **TO VERIFY EXPECTED MISSION**
  - **SECURITY REQUIREMENT**  
(LIMITED SECURITY DETACHMENT)

# **SITE RECONNAISSANCE SITE SURVEY**

- **THE MISSION IS TO OBTAIN INFORMATION:**
  - **ANALYZE OBJECTIVES**
  - **REPORT INFORMATION ACCURATELY**
  - **AVOID DECISIVE ENGAGEMENTS**
  - **DEVELOP SITUATION RAPIDLY**
    - (DEPLOY, RECONNOITER, REGRESS)
  - **DEBRIEF / REPORT**

# PLANNING CONSIDERATIONS

## • **SITE SURVEY**

### –WHO GOES:

- **PLATOON SGT or PLATOON CMDR**
- **UTILITIES REP**
- **HEAVY EQUIPMENT REP?**
- **SURVEYOR?**
- **BULK FUEL REP?**
- **SECURITY REP?**

# **Site Recon Team - What if no Engineer is available to go**

- Aerial photography/satellite imagery
- CIA World Fact Book
- US Department of State Country and Area Studies
- Military units operating or who have operated in the A/O
- Not limited to military units – Civil Affairs
  - Defense Attache Office (U.S. Embassy)
  - U.S. Agency for International Development (USAID)
  - Peace Corps
  - Drug Enforcement Agency

# PRELIMINARY PLANNING

## **ANALYZE METT - T**

- ▮ LIST THE FACTS
- ▮ STATE SIGNIFICANCE
- ▮ DRAW CONCLUSION

**•Issue the Warning Order**



# MISSION

- Establishes the tasks of a contingency force
  - Specified or Implied.
- Establishes the area of operations, the time available for deployment, and duration
- THE 5 W's
  - What unit(s) will be using the cantonment?
  - What is the purpose of the cantonment (i.e. displaced person camp, EPW camp, or HCA camp)?
  - What is the Commander's Intent?
  - When will work begin and when will it be occupied?
  - Where will the camp be located and where will vital life support functions come from.

# ENEMY

- EMDCOA
- EMLCOA
- ENEMY ENGINEER CAPABILITIES?

# ENTRY CONDITIONS

- **PERMISSIVE ENTRY**
  - Kuwait, Honduras
  - Lowest threat level
- **SEMI-PERMISSIVE ENTRY**
  - Haiti, Indonesia
  - Moderate threat level
- **FORCED ENTRY**
  - Iraq, Afghanistan
  - High threat level

- **TERRAIN and WEATHER**

- **What impacts will you have on local area**
- **What Social and Cultural obstacles exist?**

# TROOPS AND SUPPORT

- **Analyze T/O and T/E**
- **Identify shortfalls**

# LOGISTICS

- **Air Contingency**
- **Sealift**
- **Prepositioned assets**

**30 Days self supporting capability**

# LOGISTICAL REQUIREMENTS

- **CHOW AND WATER**

- CONTROL & ISSUE POINTS
- STORAGE
- CONSUMPTION

- **CONSTRUCTION MATERIAL**

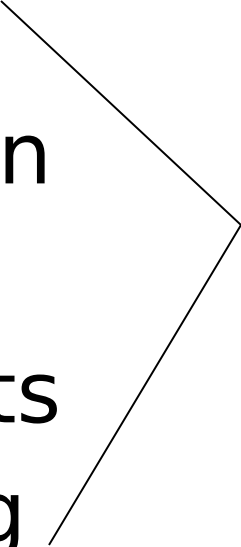
- PROCUREMENT
- SECURITY
- STORAGE

# LOGISTICAL CONSIDERATIONS

- **HOST NATION SUPPORT**
  - **TRANSPORTATION**
  - **CIVILIAN CONTRACTORS**
  - **CIVILIAN EMPLOYEES**
  - **MILITARY UNITS**
  - **FACILITIES**
  - **SUPPLY / EQUIPMENT**
    - **CLASS III, CLASS IV, CLASS IX**
  - **MEDIA**
  - **MAPS**



# Continue the Planning

- RFIs/RFSs
  - Site Selection
  - Scheduling
  - Requirements
  - Site Planning
- 

Engineer  
Estimate of  
Supportability

EXECUTION



What is the abbreviated acronym engineers use in preliminary planning.

What are some examples of support we might receive from a Host Nation?

**10 Min**

**Break!**

# SITE SELECTION

- **Site Selection is required when:**
  - Need determined without site specified
  - Contingency planning
- **Site Selection is not required when**
  - HN designates and US approves
  - Tactics or operations dictates

# **SITE SELECTION**

- **Military mission/Political situation**
- **Expected duration**
- **Size and Composition of force**
- **Level of hostilities**
- **SOFA**
- **Land use agreements**
- **Physical conditions**

# **SITE SELECTION**

- **Utilities**
  - **Water**
  - **Sewage**
  - **Power**
- **Medical and health concerns**
- **Local labor market**
- **Existing facilities**

**Final approval will be the Commander's**



What are some of the factors that may impact the decision about site selection?

What are some examples to consider when setting up cantonment in a Host Nation?

**10 Min**

**Break!**



# **REQUIREMENTS**

- **Dictated by mission**
- **Support Functions**
  - **What's existing?**
- **Supporting Who?**
  - **Permanent Military personnel**
  - **Temporary Military personnel**
  - **Non-military temporary personnel**

# REQUIREMENTS

## ▮ **COC**

- **TENTS/BUNKER (SITUATION DEPENDENT)**
- **SECURITY**
- **BRIEFING AREA**

## ▮ **STAFF AND ADMIN AREAS**

- **PERSO / ADJ**
- **INTEL and OPS**
- **LOGISTICS**
  - ❖ **S-4, SUPPLY, MMO, ORD O**

# REQUIREMENTS

- **COMMUNICATIONS AREA**
  - **ANTENNA FARM**
  - **WIRES**
    - **BURY, OVERHEAD, CLEARLY MARKED**



# **WATER REQUIREMENTS**

- **WATER POINT**

- **20 Gal/Marine/day**
- **CLOSE TO WATER SOURCE**
- **BERM ALL STORAGE BAGS**
- **ROAD NETWORK FOR MAINTENANCE / PICKUP**
- **PROTECT WATER LINES FROM TRAFFIC**
- **DISTRIBUTION / REFILLING WATER POINTS**
- **LOCATED AWAY FROM HAZARDOUS MATERIAL**

# WATER TABLE

DAY	PERSONNEL ON HAND	REQUIRED (GALS)	STORED	DELIVERED FROM HNS	PRODUCED	NOTES
1	300	6000	0	8000	0	ADV PARTY ARRIVES
2	300	6000	2000	8000	20000	WATER POINT ESTABLISHED
3	450	7500	22000	8000	20000	MESSING BEGINS SERVING A-RATS
4	1100	25000	47000	8000	20000	MAIN BODY ARRIVES, SHOWER HOURS BEGIN
5	1100	25000	50000	0	20000	HNS HOLIDAY
6	1100	30000	45000	8000	20000	SCHEDULED VEHICLE WASH-DOWN

# HEADS

- **1 HEAD PER 15 PERSONNEL**
- **MALE / FEMALE**
- **URINAL TUBES**
- **120 Ft. FROM BILLETING**
- **300 Ft. FROM MESSING**
- **TYPES OF HEADS**

- **BURN-OUT HEADS**
- **PIT HEADS**
  - **MOUND HEADS**
- **CHEMICAL TOILETS**
- **WAG BAGS**
- **URINE SOAKAGE PITS**







# HYGIENE

## SHOWERS

- 120' FROM BILLETING
- 300' FROM MESSING
- HOURS

## LAUNDRY

- 120' FROM BILLETING
- 300' FROM MESSING
- WASH RACKS

- CHANGING DRAINAGE TENTS

- PART OF THE DOS
  - CAPTURE/RECYCLE WATER
  - EVAPORATION BEDS

# **HYGIENE**

- **HYGIENE STATIONS**

- SHAVING
- BRUSHING  
TEETH

- **HAND WASHING STATIONS**

- HEADS
- CHOW HALL

- WATER SOURCE
- DRAINAGE

# **ELECTRICAL**

## **▮ SOURCES OF POWER**

## **▮ HIGH USERS OF POWER**

- WATER / HYGIENE**
- COC**
- BILLETING**
- MAINTENANCE**
- MESS FACILITY**
- BAS**
- CLASS IV LOT, ASP, FUEL POINTS**

# **ELECTRICAL**

## **▮ POWER / ELECTRICAL POINTS**

- ▮ CONSOLIDATE GENERATORS WHEN POSSIBLE**
  - ▮ OFFERS SAFETY**
  - ▮ PROVIDES EASY SECURITY**
  - ▮ PROVIDE CONTROL**
  - ▮ EASY MAINTENANCE**

## **▮ PROTECT POWER LINE**

- ▮ BURY POWER LINES / MARK LOCATION**
  - ▮ CONSOLIDATE WIRES BEFORE BURYING**
- ▮ OVERHEAD POWER LINES MIN. (18 Ft. CLEARANCE)**



# ELECTRICAL

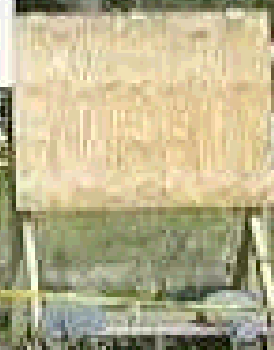
## ▮ TAP INTO LOCAL POWER

- ▮ ENSURE HOST NATION POWER HAS SAME VOLTAGE

## ▮ SAFETY CONSIDERATIONS

- ▮ INSPECT FOR UNAUTHORIZED TAPS
- ▮ INSPECT FOR OVERLOADED CIRCUITS
- ▮ DON'T LEAVE HOT WIRE EXPOSED TO THE ELEMENT
- ▮ PROVIDE A 50 Ft. PERIMETER AROUND HIGH VOLTAGE AREAS

DANGER  
HIGH  
VOLTAGE



# FUEL FARM / POINT

- AWAY FROM BILLETING AREA
- DOWN HILL FROM BASE CAMP SITE
- BERM AND SEPARATE ALL STORAGE BAGS AND FUEL TYPES
- FIRE FIGHTING CREWS / EQUIPMENT
- AWAY FROM WATER SOURCE / STORAGE SITE
- DISTRIBUTION:
  - ENTRANCE / EXITS
  - LOCATED IN CLOSE PROXIMITY TO HIGH USAGE EQUIPMENT
  - PUMP / GRAVITY FED
  - RESPONSIBLE FROM HIGH WATER MARK INLAND





# MESS HALL

- LOCATED IN CENTRAL PART OF THE CAMP
- SEPARATE CHOW HOURS FOR EACH COMMAND
- CONSOLIDATED / SEPARATE MSC FACILITIES
- COVERED MESSING FACILITY
- PEST CONTROL
- HAND WASHING STATIONS
- MESS FACILITY CAN BE USED FOR AS MULTI-PURPOSE FACILITY (Religious, Meeting, Movie)



# **WASTE and ENVIRONMENTAL**

- **WASTE**

- GARBAGE PITS

- ONE 4 X 4 X 4 PIT FOR EVERY 100 MARINES

- PAPER / WOOD

- BURN

- **HAZARDOUS WASTE**

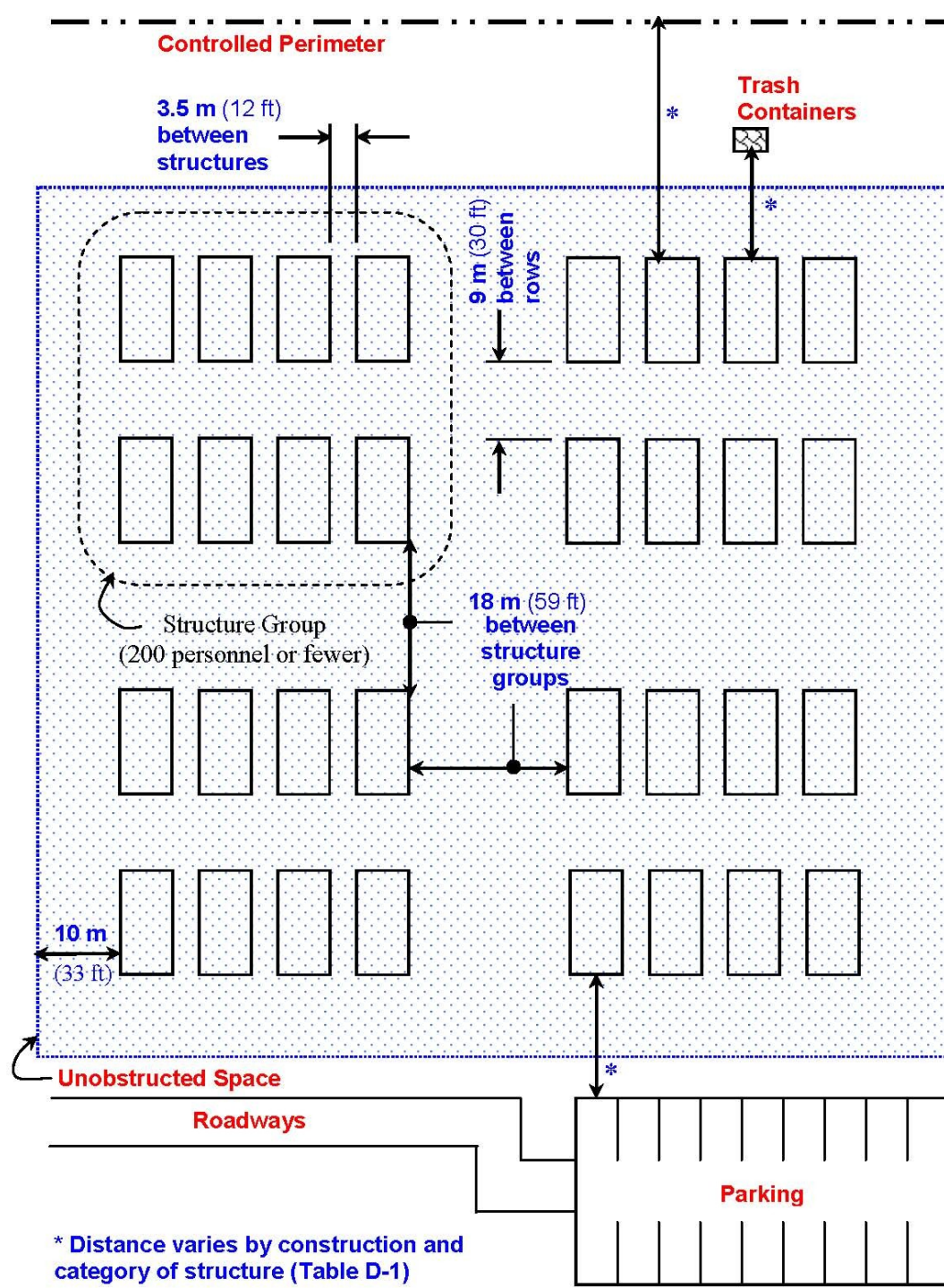
- POL

- BATTERIES

- **PEST CONTROL**

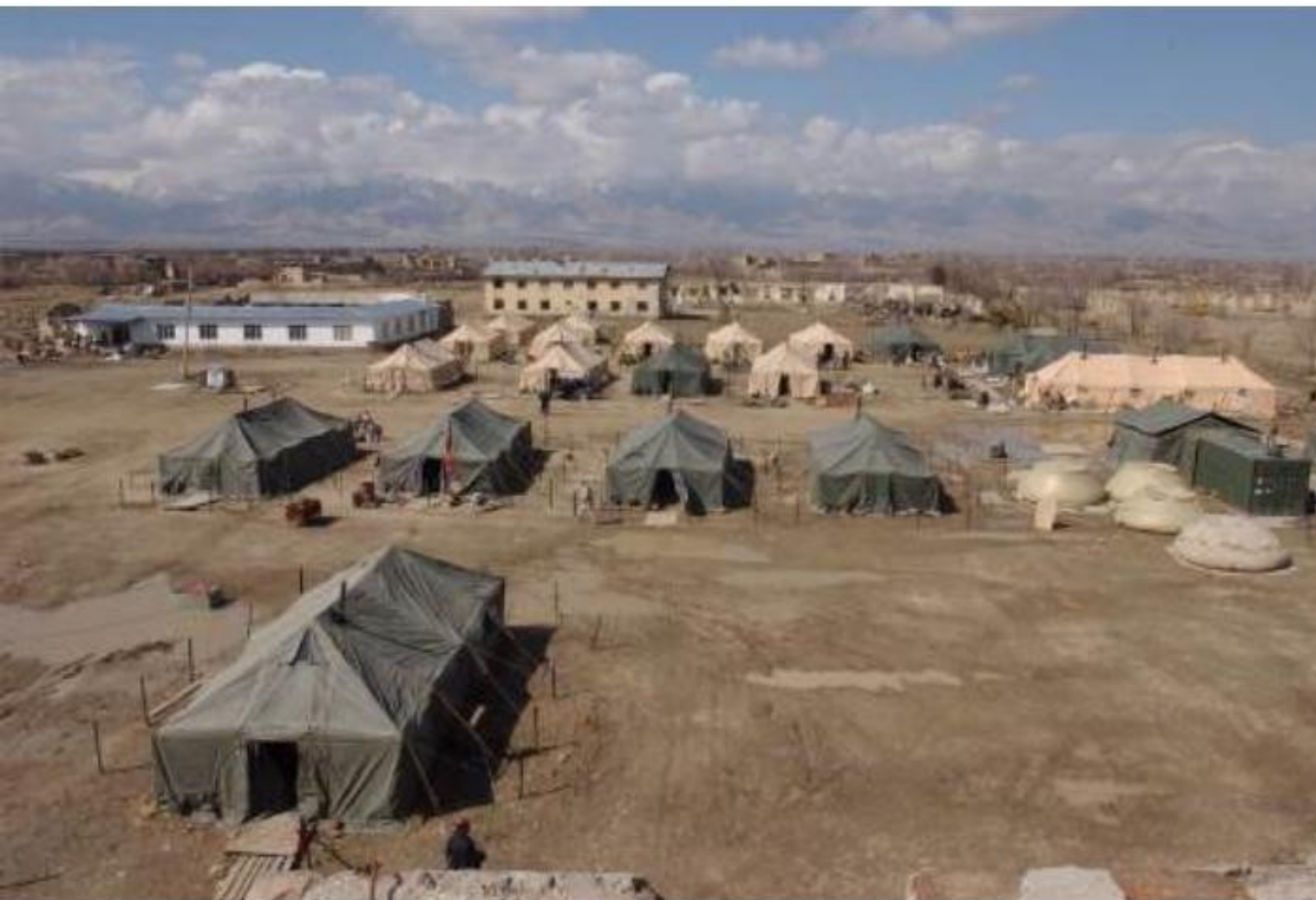
# BILLETING

- GP TENTS, STRONG BACKS, SEA HUTS
- PLANNING FACTOR 12 MEN PER TENT
- SPACING
  - 12' SIDE TO SIDE
  - 30' END TO END
- FIRE LANES / EXTINGUISHERS
- SEPARATE POPULATION
  - WAR TIME OPERATIONS (MSC, RANK, SEX)
  - PEACETIME OPERATIONS
    - (SEX, FAMILY, RELIGION, AGE)











# **OPERATIONAL AREAS**

- AWAY FROM MAIN ROADS AND PROTECTED FROM DUSTY AREAS
- BUILT ON FLAT GROUND
- AWAY FROM MAIN CAMP (BILLETING AREAS)

# **OPERATIONAL AREAS**

- BILLETING AREA WITHIN SITE FOR DUTIES
- LOADING RAMP
- GROUPED

- **EQUIPMENT / VEHICLE WASH RACK**
  - **CLOSE TO MAINTENANCE AREA**
  - **GOOD DRAINAGE**
  - **POSSIBLE RECYCLE OF WATER**
  - **CALCULATE WATER AS OTHER**
    - **(NOT PART OF DOS)**

# AMMUNITION SUPPLY POINT (ASP)

- 1250 Ft. FROM BILLETING and OPERATIONAL AREAS
- SECURITY / LIGHTING
- SEPARATE AMMO BY CLASSES / DODIC'S
- BERM ALL AMMO BUNKERS
- DRY / FLAT OPEN AREA
- EASY ACCESS IN AND OUT
- SPACE FOR LOADING / UNLOADING AND OPERATION OF HE

# **S-4 LOT / SUPPLY LOT**

- AWAY FROM BILLETING / ADMIN AREAS
- SECURITY / LIGHTING (Situation Dependent)
- DRY / FLAT AREA
- EASY ACCESS IN AND OUT
- SPACE FOR LOADING / UNLOADING AND OPERATION OF HE
- USE OF SHIPPING CONTAINERS

# **AID STATION**

- CENTRALLY LOCATED WITHIN CAMP
- CORPSMAN BILLETING NEXT TO BAS
- BED SPACES FOR PATIENTS IN SEPARATE TENT THAN SURGICAL / EXAMINATION TENT
- SHOULD BE STRONGBACK OR BETTER
- PARTITION TO ALLOW CONFIDENTIALITY

# **LANDING ZONE**

- **DOWN WIND FROM BASE CAMP AREA**
- **AWAY FROM BURN AREA**
- **MINIMUM CONSTRUCTION CRITERIA MUST BE MET**



What are some of the important distances that we need to keep in mind as we do our planning?

Name some of the administrative staff that belong in a COC?



**10 Min**

**Break!**

# SITE PLANNING

- **THE PURPOSE:**
  - ENHANCE MISSION ACCOMPLISHMENT
  - MEET TACTICS AND AT/FP REQUIREMENTS EARLY ON
  - ENVIRONMENTAL
  - PROMOTE QUALITY OF LIFE

# SITE PLANNING

- **PARAMETERS:**
  - FUNCTIONALITY
  - MAINTAINABILITY
  - ENVIRONMENTAL SOUNDNESS
  - AESTHETICS

# **SITE PLANNING**

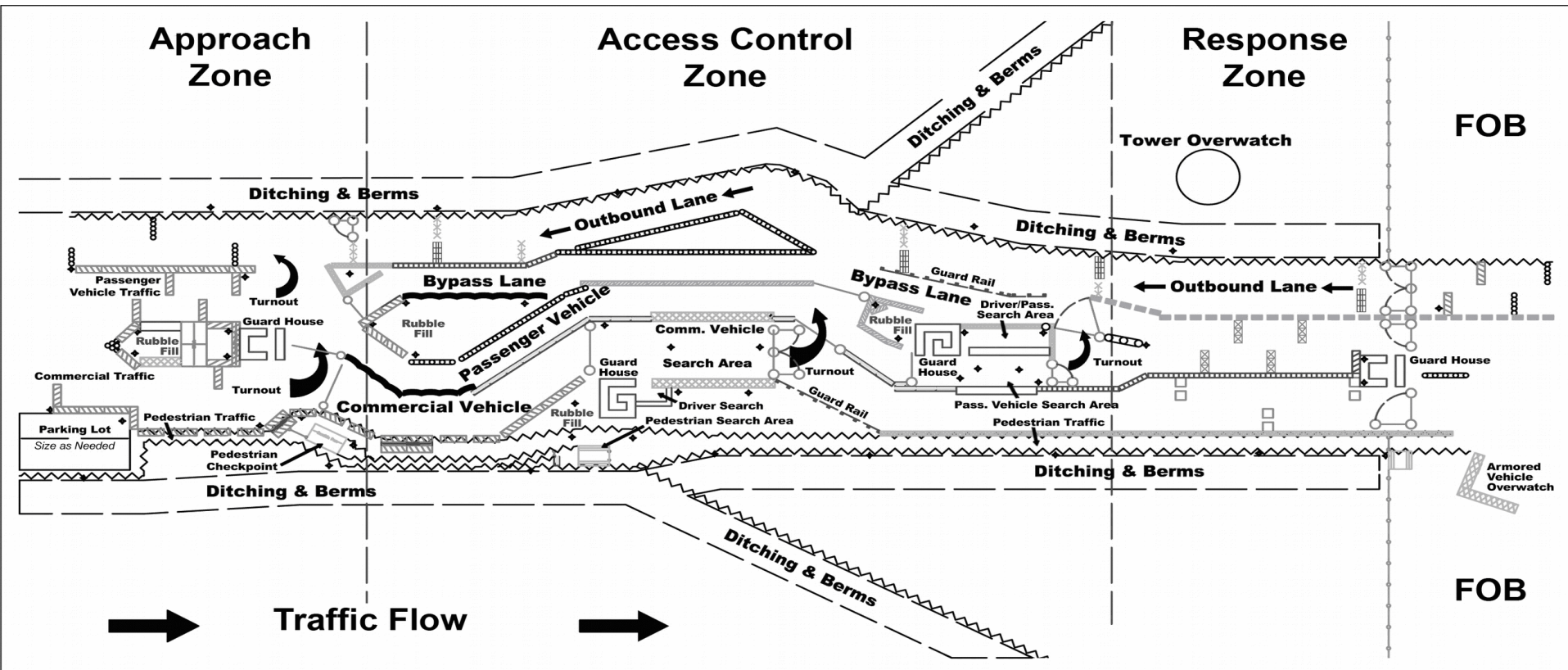
- **CONSIDERATIONS:**

- **AT/FP**

- **10m BETWEEN BUILDINGS**
    - **10M CLEAR SPACE**
    - **45M STANDOFF FOR PGSs**

- **SITE ACCESS**

- **AT LEAST 2 ECPs**
    - **TYPES OF TRAFFIC**



# GENERAL CONSIDERATIONS

- **PREVAILING WINDS**
  - LZs, BURN PITS, HEADS, DUST
- **DRAINAGE**
  - NATURAL AND CREATED
  - SEASONAL
- **FUNCTIONALITY AND PROXIMITIES**
- **EXPANDABILITY**

**MISSION AND SITUATION DICTATES!**



Name two considerations that will impact the Site Plan for your cantonment site.

**10 Min**

**Break!**



# **OPERATION AND MAINTENANCE**

- **Utilities Equipment**
- **Survivability Positions**
- **Fuel Farm**
- **MHE**

# Camp Closure and Cleanup

- Disposition of Equipment and Materials
  - Generators, Class IV, etc.
- Condition of Property
- Environmental Cleanup
  - HazMat
  - UXO
- AT/FP

**CAMP McCULLA (east)**

**JTF BASE CAMP**

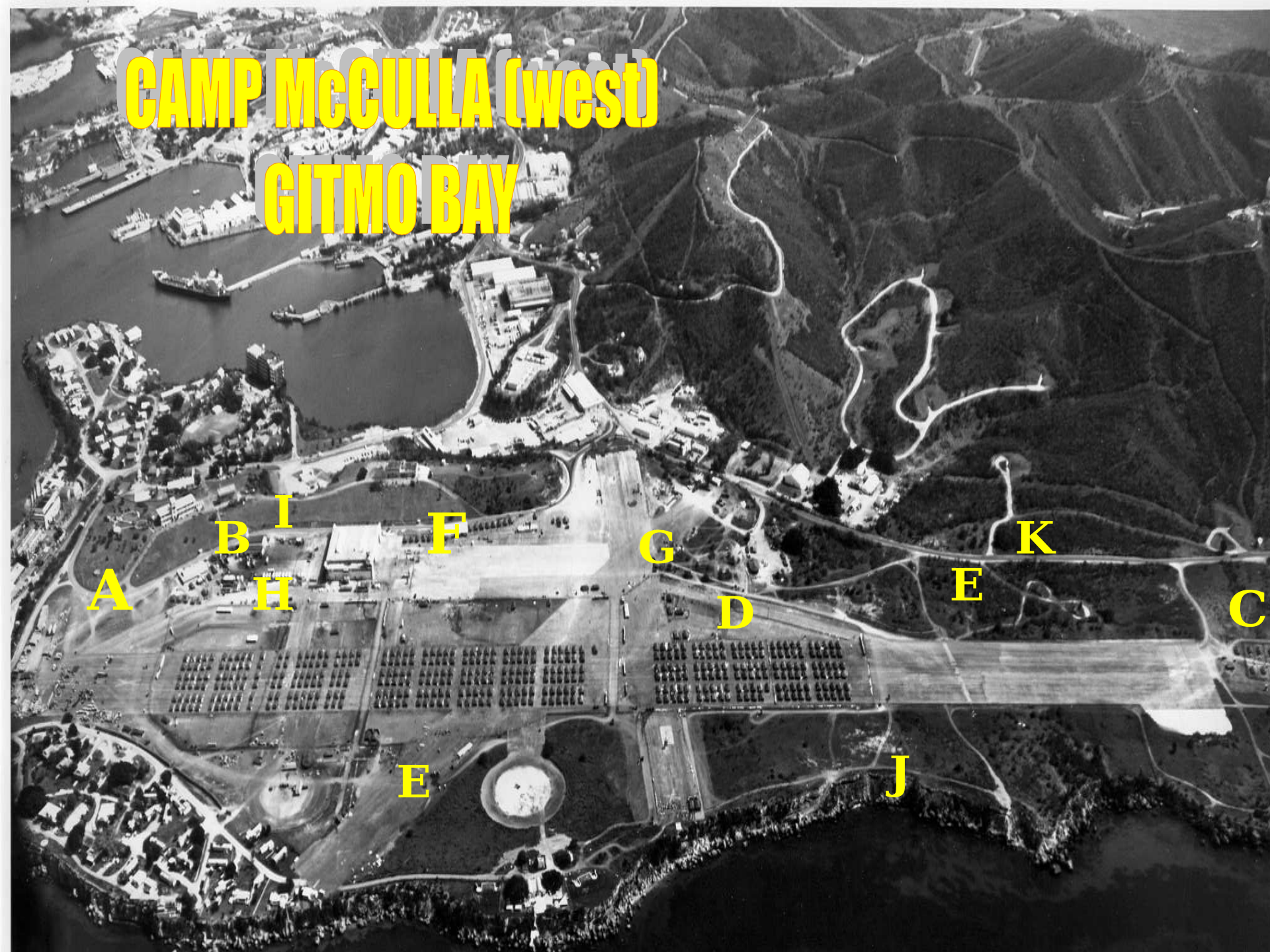




CAMP McCULLA (west)

GITMO BAY


A B I F G E K C  
H D  
E J



# Camp Closure and Cleanup

- Disposition of Equipment and Materials
  - Generators, Class IV, etc.
- Condition of Property
- Environmental Cleanup
  - HazMat
  - UXO
- AT/FP

# PRACTICAL APPLICATION

  
Name an important  
consideration that you need to  
remember when  
closing/cleaning a basecamp?

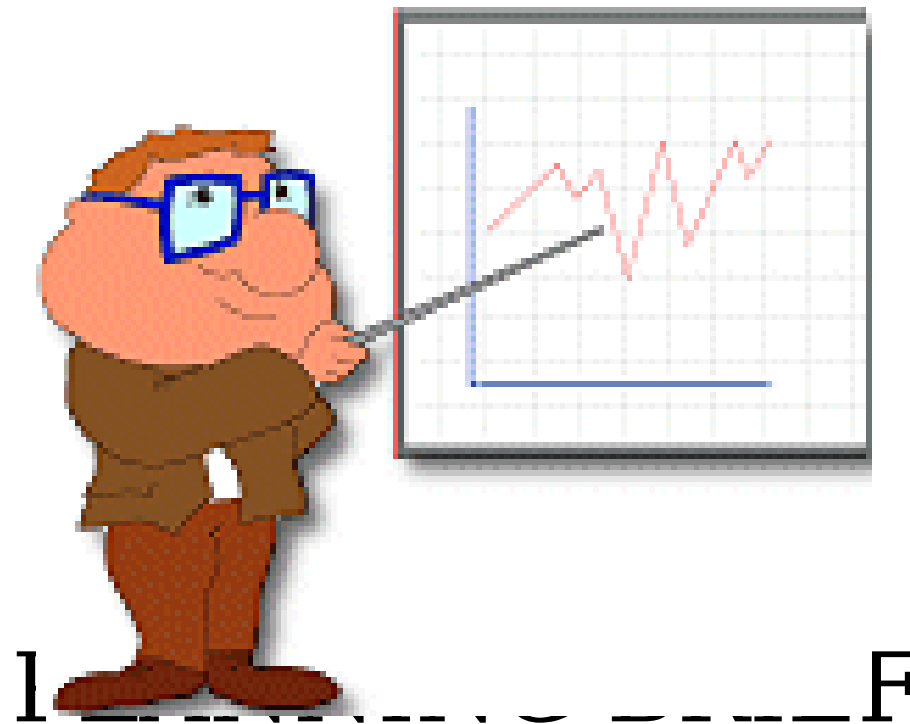
What is an important and  
continuous task during  
operation and maintenance of a  
basecamp?

# SUMMARY

- Reasons why we may be called upon to build a cantonment,
- Planning Process
- Required Areas
- Site Selection
- Site Layout
- Camp Closure Processes.



# BASE CAMP



- **CAMP DIAGRAM**

- SCALE DRAWING OF CAMP LAYOUT

- PROVIDE SMALLER MAP FOR BRIEFING PURPOSES
    - DISPLAY ALL AREAS/FACILITIES
    - NOTE NORTH, PREDOMINANT WIND DIRECTION
    - CAN BE DEVELOPED BY D/S
    - CAD IS USEFUL FOR CHANGES/COPIES
    - ADDITIONAL PAGE/OVERLAY WITH ELECTRICAL PLAN

- **BRIEFING PACKET**

- VITAL INFORMATION FOR STAFF MEMBERS
- CAMP CAPABILITIES
- CONSTRUCTION SCHEDULE
- WATER, FUEL TABLES
- ELECTRICAL DIAGRAMS (NO CALCULATIONS)
- CONSOLIDATED BOM (NO CALCULATIONS)
- MOVEMENT PLAN
- DETAIL CAMP CAPABILITIES (SHOWER HRS, FACILITIES, GROWTH, ETC.
- ORM ASSESSMENT

- **DELIVERABLES**

- METT-TSL ANALYSIS
- TIMELINE CALCULATIONS
- TASK ORGANIZATION
- ELECTRICAL CALCULATIONS
- BOM CALCULATIONS FOR EACH TYPE OF FACILITY
- WATER, CHOW, POL CALCULATIONS

